

THURSDAY, OCTOBER 27, 1910.

## ANCIENT PLANTS.

*Ancient Plants: being a Simple Account of the Past Vegetation of the Earth and of the Recent Important Discoveries made in this Realm of Nature Study.* By Dr. Marie C. Stopes. Pp. viii+198, with 122 figures and frontispiece. (London: Blackie and Son, Ltd., 1910.) Price 4s. 6d. net.

FOSSIL botany, once the very type of a dry-dust subject, has attracted a good deal of attention of late years, and its more important discoveries and conclusions have become the common property of students of botany, at least in this country. Miss Stopes aims at interesting a wider class. "There is no book," she says, "in the English language which places this attractive subject before the non-specialist, and to do so is the aim of the present volume"; further on she adds that her book is dedicated "especially to all those who take an interest in plant evolution, because it forms a thread in the web of life whose design they wish to trace."

The author is well qualified for her work, and has attained a considerable measure of success. Her style is interesting, and if sometimes a little careless, that is, after all, a minor point. Miss Stopes is somewhat severe on her predecessors, of whose work she speaks thus: "But, like the records left by the plants themselves, most of this literature is unreadable by any but specialists, and its really vital interest is enclosed in a petrifying medium of technicalities" (p. 2). Her object is to make these dry bones live, but it has been tried before.

The chapters on the various kinds of fossil plants and on coal are very well done, especially the account of coal-balls, those calcareous nodules which contain the wonderful structural specimens on which our knowledge of coal-plants so much depends. On this subject the author is a leading authority.

The "Seven Ages of Plant Life" (chap. iv.) range from the archæan to the present day; the sacred number seven may have a charm for some; otherwise we should have thought a shorter list would have been more useful; there are only four really important periods to be distinguished in the history of plants as known at present. The chapter on stages in plant evolution is wisely kept quite elementary, any general discussion of the evolution of the various groups being necessarily postponed until all have been studied. The assumption that life is "endowed with a continuous impulse to advance" (p. 43) will strike the Darwinian reader as unduly mystical.

The diagrams and curt descriptions of cells and tissues of recent plants given in chap. vi. will scarcely help the general reader very much; unless he has had more training in botany than this, he had better leave the anatomy of fossil plants alone. The truth is that fossil botany, if it is to include structure, is *not* a subject for a beginner. Those, however, who have done some laboratory work before may find this outline of anatomy of some service by way of recapitulation.

Ten chapters are devoted to the past histories of plant families, and form the main division of the book. It is impossible to follow these chapters in detail; on the whole, they give a very good sketch of some of the chief results of modern research, but their merits will be best appreciated by those who have some previous knowledge. The author has some incisive remarks on the modern theory of the origin of Angiosperms from Cycadophyta, allied to the Bennettitales; she says: "We must not forget that the Bennettitales have only recently been realised fully by botanists, and that a new toy is ever particularly charming, a new cure particularly efficacious, and a new theory all-persuasive" (p. 103). This is quite a fair hit, but the next paragraph is less happy. In criticising the supposed primitive position of the Ranales among Angiosperms, the author states that they are most frequently delicate herbs, and that they are peculiarly remote from the group of Bennettitales in their vegetative structure. Really it is the shrubby Magnoliaceæ which chiefly come into the question; in the structure of the wood some of these plants are more like Gymnosperms than any other of the Dicotyledons.

The concluding chapter, which includes an ingenious attempt to forecast the future course of plant-evolution, is very interesting. It is perhaps a pity that in the space of about one page the author tries to give an idea of the mutation theory as opposed to pure Darwinism. An altogether misleading idea of Darwin's position is given, and the whole question would have been better omitted in a book for beginners.

In the appendices some hints on the collection of fossil plants are given, followed by a short bibliography. It is rather hard on Mr. Kidston that he is only represented by his British Museum catalogue of 1886, a list which he would certainly regard as now out of date. The book concludes with a glossary of some botanical and geological terms.

Most of the illustrations are good and useful; a few, especially some of those from photographs, are less clear than is desirable in an elementary book.

Although, as we have seen, there are some points open to criticism, Miss Stopes's book is an enterprising and able attempt to popularise a difficult subject. The really keen student will undoubtedly be stimulated to pursue the study of fossil plants further, and even those who are not students will get some new ideas and derive a certain amount of interest from a book which is sometimes brilliant and never dull.

D. H. S.

## BRITISH RAINFALL.

*British Rainfall*, 1909. By Dr. Hugh Robert Mill. Pp. 120+308. With maps and illustrations. (London: Edward Stanford, 1910.) Price 10s.

THIS volume is the forty-ninth of the series, and the largest hitherto issued, but the price remains the same as when it was a quarter of the size. The value of the work of the British Rainfall Organisation in all questions in which an accurate knowledge of the rainfall is essential has been acknowledged on

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all sides, and has frequently been referred to in our columns. Owing to the continual growth of the work, the director, who for many years has received no financial help except from the observers themselves and a few subscribers interested in the subject, has in recent years had to meet a considerable deficit. In order to ensure the undertaking "from the risks of mortality," he has made over the unique collection of documents and his interest in the concern to a strong representative body of trustees, who have formed an endowment fund, while Dr. Mill will continue to act as director, as before; this arrangement was referred to in our issue of June 16.

Part i. includes an interesting article by Mr. Gethin Jones on the snowfall of the Snowdonian range; one of the photographs shows a large patch of snow lying on June 29 last; also a discussion of the duration of rainfall in 1909 by the editor. In part ii., eighty pages are occupied by observers' remarks; the director has hinted elsewhere that the space might be more serviceable for printing additional monthly values. In addition to the usual tables, interesting chapters are devoted to the discussion of heavy rains in short periods and on rainfall days, with maps illustrating some of the greatest falls. There are also maps showing (1) the amount of rainfall and (2) percentage of average, with a short discussion, for each month. For the British Isles, as a whole, the rainfall of the year (38.56 inches) was exactly the average; but during the last twenty-one years dry years have been more than twice as frequent as wet ones. Reference is made in the report to a crusade against entering the rainfall to the wrong day. This is most important, and, unless one rule is adhered to, accurate maps of monthly rainfall cannot be drawn. But, notwithstanding the efforts of meteorological conferences to ensure uniformity, differences do still exist in some of the best foreign services. To take only one case, the Austrian "Instructions" (1905, p. 17) correctly direct that, even when known to have fallen in the early morning, the amount should be entered to the previous day, while the Norwegian "Year Book" (1909, p. ix) says the rainfall measured in the morning is entered to the preceding day, except when it is known for certain that it fell after midnight.

#### INDIAN CRUSTACEA.

*Catalogue of the Indian Decapod Crustacea in the Collection of the Indian Museum.* By Lt.-Col. A. Alcock, F.R.S. Part i., Brachyura. Fasciculus i., Introduction and Dromides or Dromiacea (Brachyura Primigenia). 1901. Pp ix+80+viii plates. Price 7 rupees. Fasciculus ii., The Indian Fresh-water Crabs—Potamonidae. 1910. Pp. iv+135+xiv plates. Price 14 rupees. (Calcutta.)

THE "Catalogue of the Indian Decapod Crustacea," which is in course of publication by the Trustees of the Indian Museum, Calcutta, consists of a series of independent fascicles, each complete in itself, and forming a systematic monograph of the Indian species

in the group with which it deals. The two parts under notice relate to the Brachyura. The first, published nine years ago, contains a general introduction to the series giving an outline of the morphology of the Decapoda, so far as it is necessary for systematic purposes, and describing as a type *Nephrops andamanica*, a form closely resembling the Norway lobster of our own coasts. This is followed by a statement of the characters distinguishing the Brachyura or true crabs, and a sketch, all too short, of their bionomics, with special reference to the Indian species, prefacing a systematic account of those belonging to the Tribe Dromiacea. This tribe is of special interest on account of the very primitive character of some of its members, which enable the origin of the Brachyura to be traced back, as Bouvier showed, to the lobster-like Nephropsidae. Many important types were captured by the *Investigator* in the Bay of Bengal, and are fully described and figured in this fascicle.

The group of Brachyura dealt with in the second fascicle is also of special interest, although for very different reasons. The river-crabs of the family Potamonidae (formerly known as Telphusidae) are found in fresh waters throughout the tropical regions of the world. Their geographical distribution has been especially studied by Dr. A. E. Ortmann, who used it in his ingenious speculations regarding the former distribution of land and water on the surface of the globe. The geographical relations of any group of organisms, however, can only be studied with profit when their systematic relations have been determined with some degree of certainty, and it happens that the river-crabs, like many other groups of fresh-water animals, present special difficulties to the systematist. There has hitherto been no general agreement with regard to the limits, not only of species and varieties, but even of genera and subfamilies, and the very valuable monograph of the family recently published by Miss M. J. Rathbun in the Archives of the Paris Museum, while immensely lightening the task of subsequent workers, made very obvious the unsatisfactory character of much of our knowledge of the group. Lt.-Col. Alcock now directs attention to certain structural characters, hitherto for the most part overlooked, which enable the species to be grouped in well-defined categories, and he proposes an entirely new classification, in which species hitherto placed side by side in the same subgenus are widely separated in distinct subfamilies. The application of this classification to the river-crabs inhabiting other regions is only hinted at in this memoir, but there can be no doubt that it will greatly modify our conceptions of their geographical relations.

In the power of terse and lucid description, in the acute perception of systematic affinities, and in the breadth of view derived from a familiarity with many diverse groups of the animal kingdom, Lt.-Col. Alcock has few equals among living carcinologists, and it is a matter for congratulation that his retirement from the post of superintendent of the Indian Museum has not terminated the long series of important memoirs on the Indian fauna which we owe to his pen.

W. T. C.